

Amendments to the Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An exhaust gas purification apparatus disposed in an exhaust gas passage of an internal combustion engine having a NOx purification catalyst, which comprises a sulfur component trapping agent for trapping sulfur components, which is arranged before the NOx trapping catalyst and a catalyst for oxidizing the sulfur components, disposed before the sulfur component trapping agent that contains at least one alkali or alkaline earth metal and at least one noble metal in an amount of 0.4 % by weight or less of the sulfur trapping agent, wherein the sulfur component trapping agent does not substantially release the trapped sulfur components under the conditions of the internal combustion engine.

2. (Currently Amended) ~~[[An]] The exhaust gas purification apparatus for an internal combustion engine, which comprises an exhaust gas passage for an internal combustion engine into which exhaust gas of lean air-fuel ratio and rich or stoichiometric air-fuel ratio flows, a~~ according to claim 1, wherein the NOx trapping catalyst ~~[[that]] functions to trap NOx in the exhaust gas when [[the]] an air fuel ratio of the exhaust gas is lean, a sulfur component trapping agent for trapping sulfur components in the exhaust gas, which is disposed before the NOx trapping catalyst, and a catalyst for oxidizing the sulfur components, which is disposed before the sulfur component trapping agent, wherein the sulfur component trapping agent has a trapping rate of 85 % or more of an amount of inflow sulfur in a trapping test at a flow rate of 150 ppm SO₃ - 5% O₂ - balance being N₂ gas per 1.5 moles of the sulfur component trapping agent at 300 °C and a space velocity of 30,000/h for 1 hour; and the sulfur component trapping agent has a release rate of sulfur amount of 5 % or less of sulfur trapped in the sulfur~~

component trapping agent in a release test under a flow of a 3000 ppm H₂ – 600 ppm C₃H₆ – 3000 ppm O₂ – 3.5 % CO – balance being N₂ gas at a temperature elevation rate of 10 °C/min from 250 to 750 °C at an sulfur component trapping agent entrance, after the trapping test.

3. (Currently Amended) ~~[[An]] The exhaust gas purification apparatus for an internal combustion engine, which comprises an exhaust gas passage for an internal combustion engine into which exhaust gas of lean air fuel ratio and rich or stoichiometric air fuel ratio flows, a~~ according to claim 1, wherein the NOx trapping catalyst ~~[[that]]~~ functions to trap NOx in the exhaust gas when ~~[[the]] an air fuel ratio of the exhaust gas is lean, a sulfur component trapping agent for trapping sulfur components in the exhaust gas, which is disposed before the NOx trapping catalyst, and a catalyst for oxidizing the sulfur components, which is disposed before the sulfur component trapping agent, wherein the sulfur~~ component trapping agent has a trapping rate of 60 % or more of an amount of inflow sulfur in a trapping test at a flow rate of 150 ppm H₂S - 0.5% O₂ – balance being N₂ gas at 300°C of the sulfur trapping agent and a space velocity of 30,000/h for 1 hour.

4. (Currently Amended) An exhaust gas purification apparatus for an internal combustion engine, which comprises a NOx trapping catalyst for trapping NOx, which is disposed in an exhaust gas passage, a sulfur component trapping agent disposed before the NOx trapping catalyst for trapping sulfur components, and a catalyst disposed before the sulfur component trapping agent for oxidizing the sulfur components, wherein the sulfur component trapping agent contains at least one of alkali metals and alkaline earth metals and a total amount of Pt, Pd and Rh is at least 0.4 % by weight or less of the sulfur component trapping agent.

5. (Currently Amended) The exhaust gas purification apparatus according to claim 1, wherein ~~[[the]]~~ sulfates contained in the sulfur component trapping

agent ~~[[has]]~~ have a melting temperature or decomposition temperature of 750 °C or higher.

6. (Currently Amended) The exhaust gas purification apparatus according to ~~[[to]]~~ claim 1, wherein the sulfur component trapping agent is disposed below the engine.

7. (Currently Amended) The exhaust gas purification apparatus according to claim 1, which further comprises a filter disposed ~~[[in]]~~ upstream of the NO_x trapping catalyst, wherein an upstream side of the filter is provided with a catalyst for oxidizing the sulfur components and a downstream side of the filter is provided with the sulfur component trapping agent.

8. (Currently Amended) The exhaust gas purification apparatus according to claim 1, which further comprises a filter disposed ~~[[at]]~~ upstream of the NO_x trapping catalyst, wherein the sulfur component trapping agent is formed on part of the filter, and the catalyst for oxidizing sulfur components is formed on another part of the filter.

9. (Original) The exhaust gas purification apparatus according to claim 4, wherein an amount of the alkali metals or the alkaline earth metals is 1 to 4 moles or less in terms of (alkali metals /2 + alkaline earth metals).

10. (Previously Amended) The exhaust gas purification apparatus according to claim 1, wherein the catalyst for oxidizing sulfur components contains at least one of Pt, Pd and Rh.

11. (Currently Amended) The exhaust gas purification apparatus according to claim 1, wherein the NO_x trapping catalyst ~~contains at least one of alkali metals and alkaline earth metals and at least one of noble metals, and has a function~~

functions to trap SOx under a lean air fuel condition and ~~a function~~ to release SOx in a rich or stoichiometric air fuel condition by heating the catalyst to 500 °C or higher.

12. (Previously Amended) The exhaust gas purification apparatus according to claim 1, wherein the sulfur component trapping agent is replaceable with another.

13. (Currently Amended) A sulfur component trapping agent ~~containing an ingredient~~ for trapping sulfur components in an exhaust gas, which contains at least one alkali or alkaline earth metal and at least one noble metal in an amount of 0.4 % by weight or less of the sulfur trapping agent, wherein the ~~ingredient~~ sulfur component trapping agent has a trapping rate of 85 % or more of an amount of inflow sulfur in a trapping test at a flow rate of 150 ppm SO₃ - 5% O₂ - balance being N₂ gas per 1.5 moles of the sulfur trapping agent at 300 °C and a space velocity of 30,000/h for 1 hour; and the sulfur component trapping agent has a release rate of sulfur amount of 5 % or less of sulfur trapped in the sulfur component trapping agent in a release test under a flow of a 3000 ppm H₂ - 600 ppm C₃H₆ - 3000 ppm O₂ - 3.5 % CO - balance being N₂ gas at a temperature elevation rate of 10 °C /min from 250 to 750 °C at an sulfur component trapping agent entrance, after the trapping test.

14. (Currently Amended) The sulfur component trapping agent according to claim 13, ~~wherein the sulfur component trapping agent contains~~ further comprising at least one element selected from the group consisting of ~~alkali metals, alkaline earth metals,~~ Ce, Al, Y, La and Ni.

15. (Currently Amended) A sulfur component trapping agent for trapping sulfur in an exhaust gas, which comprises a honeycomb substrate made of cordierite or metal, a porous support, and a sulfur trapping agent supported on the porous

support, wherein the sulfur trapping agent contains 1 to 4 moles of at least one of alkali metals and alkaline earth metals in (molar number of alkali metals /2 + molar number of alkaline earth metals) as conversion of elements, and the total amount of Pt + Pd + Rh is 0.4 % by weight or ~~more~~ less per the sulfur component agent.

16. (Previously Amended) A method of purification of an exhaust gas from an internal combustion engine, which uses the sulfur component trapping agent according claim 13.

17. (Currently Amended) A method of purification of an exhaust gas for an internal combustion engine, which comprises oxidizing sulfur components in the exhaust gas, trapping and accumulating the sulfur components in a sulfur component trapping agent, and purifying NOx in the exhaust gas with a NOx purifying catalyst, the sulfur component trapping agent containing at least one alkali or alkaline earth metal and at least one noble metal in an amount of 0.4 % by weight or less of the sulfur trapping agent.

18. (Previously Amended) The method of purification of an exhaust gas according to claim 16, which comprises a step for releasing the sulfur components from the NOx purifying catalyst, wherein the releasing step is carried out by changing the air fuel ratio to rich or stoichiometric and elevating temperature of the NOx purifying catalyst to 500 °C or higher.

19. (Currently Amended) A method of diagnosis of degradation of a sulfur component trapping agent in an exhaust gas purification apparatus comprising a NOx purification catalyst, a sulfur component trapping agent disposed before the NOx purification catalyst, and a sulfur component oxidizing catalyst disposed before the sulfur component trapping agent, which comprises measuring NOx purification rates before and after a step of releasing a sulfur component from

the NOx purification catalyst and diagnosing a degradation of the sulfur component trapping agent based on a difference or ratio of the NOx purification rates, the sulfur trapping agent containing at least one alkali or alkaline earth metal and at least one noble metal in an amount of 0.4 % by weight or less of the sulfur trapping agent.

20 (Original) A system for diagnosis of degradation of a sulfur component agent in an exhaust gas purification apparatus comprising a NOx purification catalyst for trapping NOx, a sulfur component trapping agent disposed before the NOx purification catalyst for trapping sulfur components, a sulfur component oxidizing catalyst disposed before the sulfur component trapping agent, which comprises means for diagnosing the sulfur component trapping agent in accordance with the diagnosis method defined in claim 19 for every sulfur component releasing step, and means for indicating replacement of the sulfur component trapping agent when the sulfur component trapping agent is degraded to a predetermined level.